

17 may be monitored, if it is determined that the
18 packet was sourced by a client device belonging
19 to the group of client devices.

CO In accordance with 37 C.F.R. § 1.121(c)(1)(ii),
separate sheets with the rewritten claims marked-up to show
the changes made to the previous version of the claims, is
filed herewith.

REMARKS

In view of the following remarks, the applicants respectfully submit that the pending claims are not rendered obvious under 35 U.S.C. § 103. Accordingly, it is believed that this application is in condition for allowance. If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, the applicants respectfully request that the Examiner contact the undersigned to schedule a telephone Examiner Interview before any further actions on the merits.

The applicants will now address each of the issues raised in the outstanding Office Action.

Rejections under 35 U.S.C. § 103

Claims 1-13, 15-25 and 28-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,035,405 ("the Gage patent") in view of U.S. Patent No. 5,946,313 ("the Allan patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

None of independent claims 1, 5, 9, 13 and 15 are rendered obvious by the Gage and Allan patents because (i) these patents, either taken alone or in combination, fail to teach or suggest, for packets sourced from a number of client devices, replacing at least a part of a layer 2 header with a unique bit string that is independent of the contents of the received packets, and (ii) one skilled in the art would not have been motivated to combine the references as proposed by the Examiner. *possible*

In addition, independent claims 1 and 13 are not rendered obvious by the Gage and Allan patents because these patents neither teach, nor suggest, determining whether or not a packet is entitled to access a particular service using at least a portion of the unique bit string. In addition, independent claim 5 is not rendered obvious by the Gage and Allan patents because these patents neither teach, nor suggest, determining a service level to which a packet is entitled using at least a portion of the unique bit string. Finally, in addition, independent claims 9 and 15 are not rendered obvious by the Gage and Allan patents because these patents neither teach, nor suggest, forwarding a copy of a packet determined to belong to a group of client devices to a monitoring facility which monitors (a) the service provided to a group of customers and/or (b) security. Each of independent claims 1, 5, 9, 13 and 15 are reprinted below with these features depicted in bold typeface:

1. A method for provisioning services to **packets sourced from a number of client devices, each of the packets** *NA* **having at least a part of a layer 2 header replaced with a unique bit string that is independent of the**

contents of the received packets, the method comprising:

- a) **determining whether or not the packet is entitled to access a particular service using at least a portion of the unique bit string; and**
- b) **if it is determined that the packet is entitled to access the particular service, then routing the packet. [Emphasis added.]**

5. A method for providing various quality of service levels to **packets sourced from a number of client devices, each of the packets having at least a part of a layer 2 header replaced with a unique bit string** that is independent of the contents of the packets, the method comprising:

NA

- a) **determining a service level to which the packet is entitled using at least a portion of the unique bit string; and**
- b) **forwarding the packet to a queue associated with the service level determined. [Emphasis added.]**

9. A method for monitoring **packets sourced from a group of client devices** defining a subset of client devices, **each of the packets having at least a part of a layer 2 header replaced with a unique bit string**, the method comprising:

N/A

- a) **determining whether or not the packet belongs to the group of client devices using at least a portion of at least one of the unique bit string; and**
- b) **if it is determined that the packet does belong to the group of client devices, then**
 - i) **copying the packet to generate a duplicate packet, and**

ii) forwarding the duplicate packet to a monitoring facility, wherein the monitoring facility monitors at least one of (A) service provided to a group of customers and (B) security.
[Emphasis added.]

13. An apparatus for provisioning services to packets sourced from a number of client devices, each of the packets having at least a part of a layer 2 header replaced with a unique bit string, the apparatus comprising:

- a) an access control list; and
- b) an access controller, the access controller including
 - i) means for determining whether or not the packet is entitled to access a particular service using
 - A) contents of the access control list, and
 - B) at least a portion of the unique bit string, and
 - ii) means for routing the packet if it is determined that the packet is entitled to access the particular service. [Emphasis added.]

15. An apparatus for monitoring packets sourced from a group of client devices defining a subset of client devices, each of the packets having at least a part of a layer 2 header replaced with a unique bit string, the apparatus comprising:

- a) a monitoring port for accepting packets of the group of client devices to be monitored;
- b) means determining whether or not an accepted packet belongs to the group of client devices using

at least a portion of the unique bit string; and

c) means for

- i) copying the accepted packet to generate a duplicate packet, and
- ii) forwarding the duplicate packet to the monitoring port so that at least one of (A) service to a group of customers and (B) security, may be monitored, if it is determined that the packet was sourced by a client device belonging to the group of client devices. [Emphasis added.]

First, none of independent claims 1, 5, 9, 13 and 15 are rendered obvious by the Gage and Allan patents because these patents, either taken alone or in combination, fail to teach or suggest, **for packets sourced from a number of client devices, replacing** at least a part of a layer 2 header with a unique bit string that is independent of the contents of the received packets. The Examiner concedes that the Gage patent does not teach this feature, but argues that the Allan patent discloses this feature. More specifically, the Examiner argues that in the Allan patent:

NA
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each of the packets [has] at least a part of a layer 2 header (MAC address, DA 28 or SA 30, fig.2) replaced (inserted) with a unique bit string (unique MAC OUI) that is independent of a layer 2 destination address 28 (as the unique MAC OUI is in SA 42){col. 7, lines 12-20; col. 8, lines 56-58}.

Paper No. 14, page 3. This is not an accurate representation of the Allan patent.

In the Allan patent, ATM cells from an ATM network (23) can be converted into an Ethernet frame for use on an Ethernet LAN (25). Figures 3A and 6A illustrate such a conversion. Conversely, an Ethernet frame from an Ethernet LAN (25) can be converted into ATM cells for use on an ATM network (23). Figures 3B and 6B illustrate such a conversion. In either case, part of the layer 2 header is not replaced with a unique bit string. Rather information (e.g., an ATM Organizationally Unique Identifier ("OUI"), ATM Virtual Path Identifier ("VPI"), ATM Virtual Channel Identifier ("VCI")) is merely inserted into the layer 2 header of a newly generated packet or frame -- it does not "replace" information in existing packets as recited in the claims. "Replace" as used in the claims has its ordinary meaning of "to take the place of" since there is already an existing packet with an existing layer 2 header. This is different from the Allan patent which inserts information in a newly generated Ethernet frame. More specifically, the Allan patent states:

an end station 39, 39', 39'' generates an outgoing frame 3, with the destination MAC indicating the ATM OUI address of E-MUX 21, rather than the address of another end station in the Ethernet network 25.

Column 8, lines 21-25. To reiterate, information originally in a header is not being replaced -- it is not used in the first place and therefore cannot be replaced. Accordingly, independent claims 1, 5, 9, 13 and 15 are not rendered obvious by the Gage and Allan patents for at least this reason. Since claims 2-4, 16, 17 and 31 depend from claim 1, since claims 6-8, 18 and 19 depend from claim 5,

since claims 10-12 and 20-22 depend from claim 9, since claims 23-25 depend from claim 13 and since claims 28-30 depend from claim 15, these dependent claims are similarly not rendered obvious by the Gage and Allan patents.

Second, none of independent claims 1, 5, 9, 13 and 15 are rendered obvious by the Gage and Allan patents because one skilled in the art would not have been motivated to combine the references as proposed by the Examiner. The Examiner contends that the Gage patent discloses determining whether or not a packet is entitled to access a particular service using a lease a portion of a unique bit string, and more specifically that the Gage patent discloses defining membership in a VLAN using a unique 48 bit MAC address. (See Paper No. 14, page 2.) The Examiner further contends that it would have been obvious to use an ATM OUI in a MAC source address as taught by Allen in the system of Gage to inform the network LAN 25 whether or not a source (incoming packet) is registered. One skilled in the art would not have been motivated to combine these teaches are proposed by the Examiner for at least the following two reasons.

NOT OBV. ↓

First, although the Gage patent discloses that security may be based on (i) a shared broadcast/multicast address, (ii) an access port identifier, (iii) a MAC source address, or (iv) an IP address, **it expressly teaches away from using such measures for security**, and instead proposes using an authentication server (AS) to "test" a newly connected end station. (See, e.g., column 2, lines 27-43 and column 5, lines 21-38.) More specifically, with regard to using a shared broadcast/multicast address of security, the Gage patent states, "A serious flaw in this approach is that end stations can join a VLAN with little or no

authentication by the network". Column 1, lines 39-41.
With regard to using an access port identifier, the Gage patent states:

 this does not prevent an intruder from disconnecting a legitimate end station and connecting an illegitimate one to the same physical port. Once connected, the illegitimate end station has access to possibly confidential information circulating within the VLAN.

Column 1, lines 48-53. With regard to using a MAC address for security, the Gage patent states:

 Unfortunately, this does not prevent an intruder from connecting an illegitimate end station to the network and inserting the MAC address of a legitimate end station into its data packets. Having successfully "emulated" a legitimate end station, the illegitimate end station gains access to restricted information being communicated in the VLAN.

Column 1, lines 62-67. Finally, with regard to using an IP address for security, the Gage patent states:

 The IP address and user name act similarly to the MAC address, and again, by inserting the identity of a legitimate end station into its data packets, an illegitimate end station can gain access to restricted data.

Column 2, lines 3-7.

As can be appreciated from the foregoing, the Gage patent clearly and strongly teaches away from using packet information for security. Indeed, this is the reason the Gage patent proposes using an authentication server to administer a key-based challenge-response test, passwords, synchronized security cards, voice printing, or fingerprinting. (See, e.g., column 5, lines 21-38.) Accordingly, independent claims 1, 5, 9, 13 and 15 are not rendered obvious by the Gage and Allan patents for at least this additional reason. Since claims 2-4, 16, 17 and 31 depend from claim 1, since claims 6-8, 18 and 19 depend from claim 5, since claims 10-12 and 20-22 depend from claim 9, since claims 23-25 depend from claim 13 and since claims 28-30 depend from claim 15, these dependent claims are similarly not rendered obvious by the Gage and Allan patents.

Second, in the Allan patent, the ATM OUI in a MAC source address is not used to determine whether or not a source (incoming packet) has access to a service, is entitled to a service level, etc. Although the ATM OUI field "informs LAN 25 that traffic is coming from a source not registered to it, so as to treat it accordingly ... this permits the ATM traffic to coexist with traditionally address Ethernet traffic" (Column 7, lines 16-20), and is not described as being used for security. Accordingly, independent claims 1, 5, 9, 13 and 15 are not rendered obvious by the Gage and Allan patents for at least this additional reason. Since claims 2-4, 16, 17 and 31 depend from claim 1, since claims 6-8, 18 and 19 depend from claim 5, since claims 10-12 and 20-22 depend from claim 9, since claims 23-25 depend from claim 13 and since claims 28-30

depend from claim 15, these dependent claims are similarly not rendered obvious by the Gage and Allan patents.

Further, independent claims 1 and 13 are not rendered obvious by the Gage and Allan patents because these patents neither teach, nor suggest, determining whether or not a packet is entitled to access a particular service using at least a portion of the unique bit string. Even if the Examiner's contentions were true, all that would be taught would whether or not a packet came from an ATM network. Thus, claims 1 and 13 are not rendered obvious by the Gage and Allan patents for yet another reason. Since claims 2-4, 16, 17 and 31 depend from claim 1, and since claims 23-25 depend from claim 13, these claims are similarly not rendered obvious by the Gage and Allan patents.

Further, independent claim 5 is not rendered obvious by the Gage and Allan patents because these patents neither teach, nor suggest, determining a service level to which a packet is entitled using at least a portion of the unique bit string. Even if the Examiner's contentions were true, all that would be taught would whether or not a packet came from an ATM network. Thus, claim 5 is not rendered obvious by the Gage and Allan patent for yet another reason. Since claims 6-8, 18 and 19 depend from claim 5, these dependent claims are similarly not rendered obvious by the Gage and Allan patents.

Finally, in addition, independent claims 9 and 15 are not rendered obvious by the Gage and Allan patents because these patents neither teach, nor suggest, forwarding a copy of a packet determined to belong to a group of client devices to a monitoring facility that monitors (a) the service provided to a group of customers and/or (b) security. The Examiner alleges that a multicast packet

*See
Amended*

inherently duplicates a packet and that sending a packet to an end station teaches sending it to a monitoring facility. (Paper No. 14, page 3 and 4.) Monitoring, as used in the specification refers to monitoring a service provided to a group of customers or monitoring security. These claims have been amended to more clearly distinguish them over merely sending a multicast packet to a destination.

Claims 14, 26 and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gage patent in view of the Allan patent and further in view of U.S. Patent No. 6,104,700 ("the Haddock patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Independent claim 14 is not rendered obvious by the Gage, Allan and Haddock patents because (i) these patents, either taken alone or in combination, fail to teach or suggest, **means for determining a service level to which the packet is entitled using (A) contents of the service level list, and (B) at least a portion of the unique bit string,** and (ii) one skilled in the art would not have been motivated to combine these patents as proposed by the Examiner. Claim 14 is reprinted with this features depicted in bold typeface:

14. An apparatus for providing various service levels to packets sourced from a number of client devices, **each of the packets having at least a part of a layer 2 header replaced with a unique bit string that is independent of contents of the packets,** the apparatus comprising:

- a) a plurality of queues, each of the plurality of queues associated with a particular service level;
- b) a service level list; and

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- c) a service level controller, the service level controller including
 - i) means for determining a service level to which the packet is entitled using
 - A) contents of the service level list, and
 - B) at least a portion of the unique bit string, and
 - ii) means for forwarding the packet to the one of the plurality of queues associated with the quality of service level determined. [Emphasis added.]

The Examiner contends that the Haddock patent teaches a forwarding device which determines quality of service levels based on a packet's IP (layer 3) address or its MAC (layer 2) address, and buffering the packet in a QoS queue associated with the determined QoS level. The Examiner then concludes that it would have been obvious to apply Haddock's teaching to a combined Gage and Allan patent system to provide quality of service for various QoS levels. Even assuming, *arguendo*, that this is true, the teaching of the Haddock patent that QoS determinations can be made based on a MAC address **does not teach making such a determination based on a unique bit string that is independent of the packet contents, and that replaced at least a part of the layer 2 header** as recited in claim 14. Thus, independent claim 14 is not rendered obvious by the Gage, Allan and Haddock patents for at least this additional reason. Since claims 26 and 27 depend from claim 14, they are similarly not rendered obvious by these patents.

Second, one skilled in the art would not have been motivated to combine the purported teachings of the Gage and Allan patent for the reasons stated above, and

therefore would not have been motivated to combine the Gage, Allan and Haddock patents.

Conclusion

In view of the foregoing amendments and remarks, the applicants respectfully submit that the pending claims are in condition for allowance. Accordingly, the applicants request that the Examiner pass this application to issue.

Respectfully submitted,



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CERTIFICATE OF MAILING under 37 C.F.R. 1.8(a)

I hereby certify that this correspondence is being deposited on **May 27, 2003** with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.


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SEPARATE SHEETS WITH MARKED-UP VERSION OF CLAIMS PER 37

C.F.R. § 1.121 (c) (1) (ii)

Claim 9 has been amended as follows:

1 9. (TWICE AMENDED) A method for monitoring packets
2 sourced from a group of client devices defining a subset of
3 client devices, each of the packets having at least a part
4 of a layer 2 header replaced with a unique bit string, the
5 method comprising:

6 a) determining whether or not the packet belongs to
7 the group of client devices using at least a portion
8 of at least one of the unique bit string; and
9 b) if it is determined that the packet does belong to
10 the group of client devices, then

11 i) copying the packet to generate a duplicate
12 packet, and

13 ii) forwarding the duplicate packet to a
14 monitoring facility, wherein the monitoring
15 facility monitors at least one of (A) service
16 provided to a group of customers and (B)
17 security.

Claim 15 has been amended as follows:

1 15. (TWICE AMENDED) An apparatus for monitoring packets
2 sourced from a group of client devices defining a subset of
3 client devices, each of the packets having at least a part
4 of a layer 2 header replaced with a unique bit string, the
5 apparatus comprising:

6 a) a monitoring port for accepting packets of the
7 group of client devices to be monitored;

8 b) means determining whether or not an accepted
9 packet belongs to the group of client devices using at
10 least a portion of the unique bit string; and
11 c) means for
12 i) copying the accepted packet to generate a
13 duplicate packet, and
14 ii) forwarding the duplicate packet to the
15 monitoring port so that at least one of (A)
16 service to a group of customers and (B) security,
17 may be monitored, if it is determined that the
18 packet was sourced by a client device belonging
19 to the group of client devices.